



PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Algirdas Avizienis

Serial No.: 09/886,959

Filed: June 20, 2001

For: "SELF-TESTING AND -REPAIRING
FAULT-TOLERANCE INFRASTRUCTURE FOR COMPUTER SYSTEMS"

Our docket: xAAA-02

Before the
BOARD OF PATENT
APPEALS AND
INTERFERENCES

APPELLANT'S REPLY BRIEF

Hon. Commissioner for Patents
P. O. Box 1450
Alexandria VA 22313-1450

Sir:

This is responsive to the Examiner's Answer, which was mailed on June 20, 2007. The points below are numbered in accordance with the Examiner's Answer.

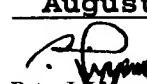
(1) REAL PARTY IN INTEREST: no new issue.

(2) RELATED APPEALS AND INTERFERENCES:

Appellant's Brief on Appeal says that there is no related appeal or interference, although the Brief did mention two interesting items: U. S. Patent 6,176,616 and *Ex parte Lemoine*,

I hereby certify that this correspondence is being deposited as first-class mail in an envelope addressed to the Commissioner of Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on

August 20, 2007.


Peter I. Hoppman, Reg. 22,835

Appeal 94-0216. The Examiner's Answer, however, objects that those two matters are "related" — saying (emphasis added):

"These appeals appear to provide the rationale for much of Applicant's action however."

The '616 Patent and Lemoine relate to only a small fraction of the Appellant's overall reasoning in this appeal.

Both items support the Appellant's efforts to very clearly distinguish claimed elements of the invention from context of the invention:

- As to use of the word "such" as a special "definite article", the Appellant's Brief on Appeal shows (mainly at pages 23 and 24) that this usage negates the Examiner's asserted failure of some dependent claims to "further limit" their base claims.

In the appeal leading to the '616 patent, this usage was in the claims, discussed at oral hearing, and survived to appear in the issued claims— seen below at pages 37 and 38, with discussion starting at bottom of page 35. That usage was closely related (not identical) to the corresponding usage in this present case.

- As to the claim-1 phrase, in preamble, "for deterring failure of a computing system", that phrase does not make the system part of the claimed combination. The Brief at page 24 mentions that Lemoine's language — "for" having a ski binding secured to a . . . plate — is not a positive recitation of a binding as part of the claimed combination.

The Appellant's point here is simply that the computing system is not an element of the claimed combination, in the Appellant's independent claims. Therefore it is further limiting to have that computing system made an element of the claimed combination in the dependent claims.

The undersigned considers it most helpful to the Board to list only pending matters as "related" — so that you can be

aware if a future decision in another matter might influence this case, or conversely the decision here might influence the other matter. Appellant is aware of no such other matter.

Both items discussed above are historical: the Board resolved the '616 Patent seven years ago (2000) and Lemoine thirteen years ago (1994). Lemoine is known to Appellant only because it is cited in the MPEP at § 1204, and in caselaw. There seems little likelihood of a future decision in either matter. They are not formal precedent; yet they seem to be clear, useful examples for possible guidance. Appellant takes for granted that the Examining Corps has access to all such materials.

(3) STATUS OF THE CLAIMS:

The Examiner's view appears to depart from the Appellant's only in regard to claims 62 through 64, and claims 76 through 78. The Appellant had offered to cancel these claims if preferred by the Board.

Hence it is believed that there is no major disagreement in substance. The Examiner's cancellation of those claims, however, is not supported, on the record, by any authority.

More specifically, the Examiner asserts that cancellation is not discretionary but rather required by the MPEP, and cites to § 716.01 c III. That MPEP section appears to deal only with "opinion evidence", and makes no reference whatever to cancellation of claims.

In the interest of administrative efficiency, Appellant very respectfully suggests and requests that the Board reinstate these claims. In event the Board is favorable to the Appellant's position in general, that would make it more straightforward to correct the minor wording errors in these claims, by amendment — so that the case could pass to issue with these claims included, as explained at the second bullet on page 13 of the Brief on Appeal

The Appellant notes with chagrin that the Brief on Appeal contains two errors on page 19, as to the location of the "explanation" for nonpresentation of these same six claims on appeal. As indicated above, the explanation actually appears on page 13 (not 12). For the Board's convenience, and with apologies, a corrected copy of page 19 of the Brief on Appeal (part of the numerical listing of claims) is appended following the signature page of this Reply Brief.

(4) STATUS OF THE AMENDMENTS:

In the Examiner's Answer (page 4) and the Examiner's Amendment (page 2) there is reference to Appellant's "deliberate and repeated attempts to force a partial withdraw". Appellant and the undersigned have little idea what this accusation means, but it does not seem to be a substantive issue.

Yet the Appellant respectfully suggests that such *ad hominem* attacks are inappropriate in this appeal. Personally and professionally, since entering direct PTO practice in 1971 the undersigned has made many mistakes but has never deliberately taken or attempted to take any improper action in the PTO.

Appellant also respectfully notes that the Examiner issued his "Amendment After Final Rejection" after the Appellant filed the Reply Brief. Therefore the Appellant's status statement was correct when filed.

(5) SUMMARY OF CLAIMED SUBJECT MATTER: no new issue.

(6) GROUND OF REJECTION TO BE REVIEWED ON APPEAL: no new issue.

(7) CLAIMS APPENDIX: no new issue.

(8) EVIDENCE RELIED UPON: no new issue.

(9) GROUNDS OF REJECTION: There is no completely new issue here, as the Examiner's Answer in section (9) appears to state the same positions as in the previously issued rejections. The Appellant will address all the live issues in section (10).

In the Examiner's Answer, however, the Appellant's claim language is still misquoted — at page 6, final paragraph of the Answer. Appellant has made best efforts to correct the record, and now asks the Board to disregard the Examiner's very misleading statement of the wording.

Specifically, as emphasized in Appellant's papers, the claims were amended in 2005 to remove the word "substantially" from its second occurrence, i. e. in the phrase (emphasis added) "substantially commercial, off-the-shelf". That was the only occurrence to which the Examiner made significant objection, prior to his Examiner's Answer — in June 2007.

In effect, the incorrect quote and the segue in position (now rejecting based on "substantially exclusively") present new grounds of rejection without saying so. Appellant takes up this point below at page 30, subparagraph (d), of this Reply Brief.

(10) RESPONSE TO ARGUMENT:

General Form and Procedural Issues

I. Form of the Arguments

The Appellant and the undersigned apologize to the Board for being drawn into nonissues that the Examiner considers im-

portant. In the Examiner's Answer it is said (page 58, emphasis added):

"Applicant has deliberately not formatted the arguments in the manner recommended by the Office, preferred by the Board of Appeals, and strongly recommended for Examiners."

Neither the Appellant nor the undersigned can figure out what the Answer is talking about. It does not say, and we do not know, what format its author deems recommended or preferred.

Also we cannot imagine how the writer divines what evil the undersigned has perpetrated "deliberately" — or what motivates a PTO officer to mount personal attacks. Once again, the undersigned has never deliberately taken any improper action before the PTO.

Nevertheless, the Examiner's Answer goes on (page 58, emphasis added):

"The Examiner is therefore modifying the typical format of the Examiner's Response to Arguments to adapt to this change."

There has been no "change". As stated in the Brief on Appeal (tops of pages 2 and 17), the Appellant's undersigned attorney aimed to follow the suggestions found in the *Federal Register* when the current appeal rules were promulgated.

Undoubtedly, however, the Examiner is more immersed in detailed procedure than the undersigned is. Quite possibly the undersigned has erred in some details of preparing the Brief.

Such a failing, however, is not in any way indicative of lack of respect for the Board of Appeal.

If the Board finds the Brief on Appeal difficult to use, or to follow, or to understand, or in any way improper, the undersigned earnestly apologizes — and stands ready to redraft and resubmit the document to correct all such problems that the Board identifies.

II. Reliance on Affidavits

(a) OVERVIEW OF THE LAPRIE DECLARATION — In the Examiner's Answer it is said that the Appellant is "not permitted" to "routinely defer[] to the Affidavit of Laprie." The Answer goes on, however (emphasis added):

"MPEP specifically states that while it must be reviewed and considered for what it contains, the legal finds [sic, findings?] themselves are not to be considered. In this case, Laprie is not an expert in United States patent law, and therefore most certainly not qualified to make determination on novelty, obviousness standards or 35 USC §112." [citing to MPEP 716.01 C III]

It appears to the undersigned that these comments reflect a severe misunderstanding of what has been submitted from Laprie — and also of what is required by the MPEP:

First, Dr. Laprie's declaration explicitly acknowledges what he is not, and expressly asserts what he is especially qualified to contribute to the patent process (Laprie paragraph 33, emphasis added):

"33. I do understand, and I will grant, that under some circumstances a patent examiner normally may be at liberty to disregard . . . practicalities and basics. In this situation, however, the issue seems to be what a real person skilled in the field would perceive or realize about possible "combinations" — and to that issue, I can testify with confidence."

That emphasis on reality is refreshing — and perhaps even prescient, in view of the later-issued decision in *KSR Teleflex*, which elevates real-world or "common-sense" or "market" considerations over rigid rules.

(*KSR* is discussed in greater detail below, at pages 42 through 44 — section VII.)

Laprie's quoted comment is not talking about an ultimate legal conclusion (such as "obviousness") under the Patent Stat-

ute but rather, specifically, what a "real person" will and does think about proposed "combinations" — and why. His comment refers to the perceptions of real people other than himself, as well as his own perceptions. Later in his declaration, as will be shown below, Laprie takes up many specific issues of this sort, and as to each issue gives specific factual reasons for his statements.

(b) MPEP MANDATES FOR CONSIDERING THE LAPRIE DECLARATION — Second, the very MPEP section cited in the Examiner's Answer instructs the Examiner thus (emphasis added):

"[O]pinion testimony . . . is entitled to consideration and some weight so long as the opinion is not on the ultimate legal conclusion at issue. While an opinion as to a legal conclusion is not entitled to any weight, the underlying basis for the opinion may be persuasive."

Laprie's declaration is full of "underlying basis" for his decisions — not only concerning "what a real person . . . would perceive or realize . . . about possible 'combinations'" — but also presenting Laprie's cogent reasons for his own opinions of the issues in this case.

The MPEP goes on to say (citing *In re Chilowsky*) that (emphasis added):

"expert opinion that an application meets the requirements of 35 U.S.C. 112 is not entitled to any weight; however, facts supporting a basis for deciding that the specification complies with 35 U.S.C. 112 are entitled to some weight)"

In even stronger language the MPEP cites *Lindell, Ashland Oil, and Oelrich* for the propositions that (emphasis added):

"some weight ought to be given to a persuasively supported statement of one skilled in the art on what was not obvious to him. . . ."

and in mandatory terms (emphasis added):

"the examiner must consider the nature of the matter sought to be established, the strength of any opposing evidence, the interest of the expert in the outcome of the case, and the presence or absence of factual support for the expert's opinion"

and, in a particular case (*Oelrich*, emphasis added):

"factually based expert opinions on the level of ordinary skill in the art were sufficient to rebut the prima facie case of obviousness"

(Citations partially contra, seen in the same MPEP section, have been omitted here.)

Appellant submits that Laprie does support his statements persuasively, and with factual support — and there appears on the record little meaningful "opposing evidence".

A related introductory section of the MPEP, section 716.01 (B), imposes specific, mandatory requirements upon the Examiner, in dealing with expert declarations. It says that if, in the Examiner's view (emphasis added) —

"the evidence is insufficient to overcome the rejection, the examiner must specifically explain why the evidence is insufficient. General statements such as 'the declaration lacks technical validity' or 'the evidence is not commensurate with the scope of the claims' without an explanation supporting such findings are insufficient."

Those requirements are very relevant to the present case, as the following sixteen excerpts from the numbered paragraphs of the Laprie declaration make clear.

These lengthy excerpts are reproduced here because the Examiner's Answer says only (page 59): "The Affidavit was reviewed and taken under consideration as required under MPEP 716.01 C III." That comment should be added to the foregoing examples of insufficient responses, at the end of section 716.01(B), as it does not even ascend to the level of "lacks technical validity".

The Appellant respectfully submits that, while the Examiner has addressed some of the same issues elsewhere, he has said nothing substantive when responding to Laprie directly. The Appellant therefore respectfully asks the Board to accept all of Laprie's statements of "supporting basis" as uncontested facts in this case.

(c) "SUPPORTING BASIS" EXCERPTED FROM STATEMENTS IN THE LAPRIE DECLARATION — Some of Laprie's expert statements of fact are quoted below. Appellant very respectfully asks to reserve the right to call attention to others, at oral hearing.

"16. [I]n discussing the dependent claims (claims 3, 18 and 46) I shall also comment on their associated independent claims (those are claims 1, 13 and 42).

". . .

"24. [N]either of the two reference documents even satisfies the recitation of the underlying independent claim 1: 'a hardware network of components, having substantially no software' Best makes absolutely clear that his product is 'under software control' and has a host processor (though it is vaguely defined, it evidently runs software); and DEDIX is entirely software.

"25. Therefore, as a completely independent expert in this field, with apologies I find it difficult to understand how there can be any argument about this extremely simple technical point.

"26. Second, the Examiner's notes reveal several misunderstandings of the character of the systems in the two references, vis-a-vis the claim-3 language (emphasis added): 'the network is an infrastructure which is generic in that it can accommodate any such system that can issue an error message and handle a recovery command.' This is a very simple and short clause, but the Examiner talks all around it (see paragraphs 20 and 21 above) without ever confronting it directly.

"27. As I read the Avizienis 1985 discussion of the DEDIX, that experiment was set up to deal with a very specific class of software modules that were custom-designed for the experiment. They were specially fitted with very unusual crosscheck features, to ena-

ble the *N*-version software comparisons in the experiment. Similarly, many other kinds of software modules would not be compatible with the DEDIX at all.

"28. The cross-check provisions of the DEDIX required that each participating program of the *N* versions contained specifically formatted 'cross-check vectors' ('cc-vectors') that the DEDIX could recognize. Furthermore they had to be at particular points in the program, where data were comparable as between versions. A program lacking these cc-vectors — at the right locations — could not run properly in the DEDIX. Thus it is quite wrong to call the DEDIX 'generic in that it can accommodate any such system that can issue an error message and handle a recovery command.' Note too that a cc-vector was not an 'error message'.

"29. Best likewise is controlling a set of circuit modules that are extremely distinctive, and the control signals from their associated software are custom-designed to operate those particular circuit modules. Thus neither of the two cited references answers to the simple, direct language of claim 3.

"30. Paragraphs 24 through 29 above give two reasons to question the purported 'obviousness' of claim 3 in view of the Avizienis/Best combination: neither reference meets the underlying claim-1 limitations, and neither reference meets the plain claim-3 limitations. Although I believe that each one of these reasons alone is fatal to the Examiner's argument, I will discuss below (in paragraphs 31 through 40) yet a third reason that is more directly responsive to the Examiner's sophisticated arguments: the documents do not inspire a person who knows this field to make the combination.

"31. Third, as I have indicated just above, a person who is skilled in this field and looks at the two documents will not likely be moved to combine any of their features.

"32. One document describes a trivial hardware circuit for manufacture, practical application and ongoing use. The other describes a distributed operating system — closely supervised by many scientists working in parallel — for a onetime academic experiment about executing and debugging multiple-version software systems.

". . .

"34. In truth, in the real world, such a [skilled] person's thinking is illuminated by the relationships that suggest themselves from reading the two documents. In this case, virtually no relevant relationships suggest themselves. The concepts, and especially the documents, are just too disparate.

"35. In fact, even upon being told that it is suggested to somehow combine the two, someone skilled in this field must immediately wonder why.

"36. The purported linkage is just not real, and in fact it is almost incomprehensible to me how the DEDIX experiment could be implemented in hardware, or Best could be expanded into an *N*-version software experiment, or why.

"37. In an early section of Dr. Avizienis's 1985 paper — not discussing the DEDIX — he does suggest that a general-purpose computer could be improved by including two additional instructions in the instruction set: 'take majority vote', and 'cross-check' data (at the cross-check points). Such proposed instructions might be regarded as 'hardware support' for software voting, but the Examiner's argument that Avizienis suggested 'hardware voting' is flatly incorrect. The Avizienis '85 paper suggests neither (a) hardware voting nor (b) combination of an *N*-version software experiment with hardware voting.

"38. Still as to the third reason for believing that it would not be obvious to combine Best with Avizienis '85: although it would not occur to a person in this field to combine them, ironically the insertion of Best into the DEDIX also would be superfluous. The DEDIX already has voting functions.

"39. I see no reason to believe that Best's voting hardware, with associated software modules to run it, would be any better than the all-software voting provisions already present in the DEDIX. Therefore even if it did, for some incomprehensible reason, occur to a skilled computer engineer to combine the two ideas, that person would immediately reject the idea.

"40. Furthermore as a practical matter the importation of Best's hardware, or its conceptual equivalent, into the multiple-minicomputer network running DEDIX would pose major practical problems. Not only would an instance of Best's hardware have to be electronically linked with each one of the minicomputers, but in addition Best's control software would have to

be somehow integrated into the existing DEDIX software — and all to no particular avail, since the hardware implementation (as I have stated above) offers no benefit."

Entirely apart from most of Laprie's "supporting basis", which is very analytical and specific, the Appellant wishes to point out a different kind of relationship — between Laprie's paragraph 34, above, and the criteria later introduced by KSR Teleflex. In that paragraph Laprie is not following a rigid formulation about "motivation" or "suggestion", or asking narrowly whether two reference documents are specifically in the same field or "art".

Rather he offers his assessment of the interplay between the references on a broader intellectual plane, or perhaps an intuitive one, a "common sense" plane — which seems to satisfy the spirit of KSR: "In this case," he says, "virtually no relevant relationships suggest themselves. The concepts, and especially the documents, are just too disparate."

Appellant believes the phrase "too disparate" means that it's too big a mental jump. Laprie cannot see skilled people putting anything from the two references together: he knows skilled people — very highly skilled ones — and thinks that they just wouldn't. There seems to be a suggestion that even he wouldn't (emphasis added):

"In this case, virtually no relevant relationships suggest themselves. The concepts, and especially the documents, are just too disparate. . . . [E]ven upon being told that it is suggested to somehow combine the two, someone skilled in this field must immediately wonder why. . . . The purported linkage is just not real, and in fact it is almost incomprehensible to me how the DEDIX experiment could be implemented in hardware, or Best could be expanded into an *N*-version software experiment, or why.

If Dr. Laprie (a person of very extraordinary skill) wouldn't, then (the Appellant submits) no person of ordinary skill would.

Accordingly Laprie covers the ground, from "supporting basis" to "common sense" — i. e. from the MPEP to KSR. Yet the only thing the Examiner's Answer can say in a direct reply to Laprie is, apparently, that his declaration does not call for any direct reply based upon principled reasoning. The Appellant therefore again respectfully asks the Board to conclude that the Examiner is not able to overcome the information offered by Dr. Laprie.

III. Preemption

With apologies, the Appellant and the undersigned are not able to comprehend the comment, in the Examiner's Answer, about "arguments . . . directed to generic and non-limiting uses."

The Appellant has certainly used the word "generic" many times in claims and discussion. In all his uses, however, that terminology is well defined and has a common-sense, ordinary meaning — nothing that would be expected to implicate Section 101.

In many passages the term "generic" is expressly defined, even defined within the language of some claims. If there is an issue here of which Appellant should be aware, the Board is respectfully asked to clarify what that issue is. At the very least any rejection based upon such an issue would appear to be a new rejection; and the Examiner's Answer states that no such rejection has been made.

IV. Interview Contents

(a) REQUIREMENT FOR WRITTEN ARGUMENT — Here the Examiner's Answer first objects to Appellant's reasoning based upon "conversations" — and says that (emphasis added):

"the Office is only to consider argument [sic, argument] made in writing when determining patentability

.... Conversations are often ambiguous and may easily be taken out of context."

In purest principle, Appellant agrees with that thought, and only points out that:

- the Examiner and the Appellant have both reduced to writing their respective understandings of the subject telephone conversation, or conversations; and
- at least in substance, the respective understandings appear to be identical.

For example, it is believed that both Examiner and Appellant have written in the formal papers something to the effect that there was a phone conversation in which the Examiner proposed that certain claim language could describe a simple circuit breaker — and the Appellant thereafter drafted a claim simply negating such coverage ("not a circuit breaker"). Neither party has since departed from that elementary accounting.

Appellant did not originate the idea that phone interviews should be reported and summarized by both parties to the conversation; to the contrary, this practice is mandatory in the PTO. The Appellant believes that the whole purpose of making it mandatory was to facilitate using the substance of the conversations in subsequent stages of the prosecution.

Therefore the Appellant relies, not upon conversation per se but rather upon the written record created jointly — that is, "the argument made in writing" exactly as the Examiner's Answer says is required. For example, in one paper the Examiner questioned (in writing) whether the Appellant possessed that particular form of the invention ("not a circuit breaker") when first filing the application.

There has never been any disagreement about where the idea of a circuit breaker, itself, came from — both sides agreed readily (in writing) that the idea of the circuit breaker itself was first posed by the Examiner. The Appellant replied, however (in writing), that it was very plain from consideration

of the Appellant's first-filed papers that his invention was in fact not a circuit breaker; i. e. that the inherent character of the invention, taken as a whole, was not a circuit breaker.

The Examiner has made various formalistic arguments — all in writing — against that conclusion, but Appellant submits that the substance of the matter is very simple: the Appellant knew initially, and still does, that the invention was not a circuit breaker; and the Examiner knew when he first read the spec, and he still knows, that the invention was not a circuit breaker; and now the Board of Appeals knows it too.

By comparison, it might be improper to now reason before the Board that when the Examiner first mentioned the idea of a circuit breaker on the phone, his tone of voice was very unusual, and was such as to suggest that it was just a joke, or more likely that it was a "gotcha" with which he was very pleased — or possibly that he meant to make some other serious point but the circuit-breaker idea just popped out. Because no such impression has ever been suggested in writing by either side, it might be improper to now so reason before the Board — and the Appellant therefore does not so reason — but this sort of thing is not and never has been at issue in this case.

Rather the Appellant relies upon the other content of the conversation, the content that has been reported in writing from the outset, and that has substantive bearing on the negative-limitation claim. That content is undisputed and indeed beyond dispute. Therefore the Appellant respectfully submits that the argument raised in the Examiner's Answer is indeed nothing more than that — an argument, one without substance.

(b) REQUIREMENT TO PETITION? — There is more, however, to this section of the Examiner's Answer (emphasis added):

"Appellant has repeatedly attempted to involve the Technical Center Director and the Supervisory Patent Examiner in the prosecution of the application. Applicant is aware that to access those individuals petitions must be filed. Their action or input is ir-

relevant no matter how enlightening, as this is . . .
not an appeal to the TC Director."

Neither the Applicant/Appellant nor the undersigned, as a matter of fact, is aware of such a requirement.

The MPEP in Section 1000 says which PTO officers are to make decisions in various different kinds of Petitions, and of course in Appeals. The undersigned, however, sees (as yet) no part of the MPEP requiring Petitions or prohibiting conversations with supervisors.

The Examiner is very ready to make still further personal and nonsubstantive accusations suggesting intentional violations of Rules. The Examiner's Answer fails to substantiate even that Rules have been violated — much less intentional violation.

The undersigned knows how to file a petition and has filed a few — but only in the Office of Petitions — not simply to talk to a supervisor or the supervisor's supervisor. While the undersigned is willing to learn that the Rules have changed in this regard (if they have), he has certainly never, ever been so informed by a supervisor or group director, or a group director's boss.

To the contrary, over several decades whenever the undersigned has phoned any of those people, the called person has indicated a plain willingness to talk, and to listen. In most cases there was also some gratitude for the undersigned's having provided "feedback" about what the undersigned believed was improper behavior of an Examiner. Not always, of course, did the called person concur in that, but the enormous efficiency gained from picking up a telephone and getting a quick answer is extremely valuable.

On substance an Examiner has long had great discretion to make decisions with which a superior disagrees. Nevertheless it is hoped that supervisors still do have a function. What appears to be sarcasm in the above excerpt from the Answer is disheartening — "irrelevant no matter how enlightening".

General Claim Arguments

I. Exclusively Hardware

(a) WITHOUT THE SOFTWARE IT WOULD BE "DEAD HARDWARE" — The Examiner's Answer here first attempts to read Appellant's claim language on the Best reference. Appellant has shown, however, that Best's system has software, and that the software operates Best's hardware.

The Answer here tries to ignore the software. That argument could be mounted against just a resistor and a capacitor connected together and energized by software. As Dr. Avizienis has personally said over and again, "It is only dead hardware."

Unlike the Appellant's invention, such a network borrowed from the Best patent would do nothing. (Appellant respectfully notes that the original claim language also said the claimed system was exclusively hardware. The Examiner required deletion of those words as redundant.)

(b) MISUNDERSTANDING THE PURPOSE OF RECITING "SUBSTANTIALLY" — The Examiner's Answer next focuses upon the word "substantially" — and repeats an analysis that he offered in a very early Action, and that the Appellant promptly corrected. The Answer says (emphasis added):

" 'Substantially' as described in the MPEP is to be permitted to bridge the gap between the physical reality and legal precision. Nothing is truly planar, linear, circular, or any other physical absolute."

As the Appellant explained then, the present invention does not use "substantially" in that way, or for any such reason — because, if that were the only reason or main reason for using the word, then it would simply be a wasted word. Everyone knows that physical perfection is impossible.

Merely by way of example, everyone realizes that a recitation such as e. g. "rectangular" is subject to the machinist's

imperfect ability to make things rectangular. In the modern day, it is inconceivable that an infringement lawsuit could turn on a defendant's argument that a claim on a rectangular thing was inapplicable because the defendant's device wasn't perfectly rectangular in the geometrical sense.

The Appellant cannot account for any suggestion in the MPEP as to the Examiner's idea of common usage. It appears, however, that the Examiner has disregarded the Appellant's declared usage, defined on the record and repeated below. In view of this prosecution, no court will disregard it.

In fact the Examiner derides it (and elsewhere derides file-wrapper estoppel too), calling the Appellant's usage "strange claim structure" and trying to prove a *reductio ad absurdum* argument. Specifically, the Examiner's Answer argues (emphasis added):

"Applicant has made clear, that should a third party add firmware or software in order to circumvent a hardware only claim, the third party would be infringing. If the third party is infringing, then the product with software or firmware must be covered by the claims."

This argument seems circular, and possibly meaningless — but only because it omits the Appellant's key elements stated on the record, namely that the feature inserted into the competitor's system is outside the claim language:

- in some way that is only trivial or insignificant functionally, while
- retaining the benefits of the claimed invention; and optionally that
- this relationship to the claim language appears deliberate.

Through such a ruse a competitor seeks to use the patentee's teachings, and enjoy the advantages of those teachings, but the competitor has implemented some deviation that is immaterial — merely to cheat the patentee. In the earlier papers (enumer-

ted below) of the prosecution, for the Examiner's assistance the Appellant even specified hypothetical examples of such trickery.

Neither the Appellant nor the undersigned is the originator of this point of view. It is believed to be long and commonly understood in the patent community, based on caselaw, that in general:

- a competitor who is willing to forego the advantages of the invention — by putting in a substantive modification that removes his product from the sweep of the claim language and loses the associated functional benefits — is free to go; but
- the competitor who makes only inconsequential, insubstantial modification, and carefully tools it up so that it does not interfere with the benefits of the invention, is an infringer.

Modernly, however, there is a new twist. The undersigned believes that this long and commonly understood view of things was originally related to the Doctrine of Equivalents. Since Festo and its later interpretations, that doctrine has been stringently contracted — in particular, made subject to vagaries of prosecution in which amended elements may be held to their literal language.

Appellant has no objection to being held to literal language, provided only that some very minimal hedge — in that language — is available against blatant thievery. It is this "very minimal hedge" which the caselaw expressly permits, as noted below, and which the Examiner's rejections seek to deny the Appellant.

As the Appellant has explained, the point of saying "substantially" is to insulate the claim scope against the defendant who (1) intentionally inserts a feature that departs from the claim language, when (2) the departure is only trivial or

insignificant in terms of function. Such explanation appears, for example, in the:

- August 2004 Amendment (pages 20 through 23);
- April 2005 Amendment (page 24, trailing to page 26; and with an Appendix at pages 36 through 45 — particularly addressed to caselaw and other authority on the topic of the word "substantially" and other "relative terminology", as contrasted with "relying on the Doctrine of Equivalents"); and
- October 2005 Amendment (pages 24 through 26).

Appellant believes that throughout prosecution of this case the Examiner has steadfastly ignored all the cited authority on this issue. The 2005 Appendix is particularly instructive on the subject of legitimately using relative language to avoid dependence on the Doctrine of Equivalents.

(c) THE FALLACIOUS THEORY OF THE GREEDY APPELLANT — Misdescribing Appellant's position, the Examiner's Answer suggests that Appellant wants to make an infringer out of any competitor who designs around Appellant's claims. This accusation is false.

Appellant has reiterated that the objective is to make an infringer out of only the defendant who cynically inserts a modification that is functionally inconsequential — specifically so that the defendant can enjoy the benefits of the patentee's creative innovation while escaping the literal language of the claim, and therefore without giving the patentee his due under the Patent Law.

As noted in Appellant's Amendments, this language as so defined can only be tested against some modification made by defendants after the patent claim language is seen. It is not easily tested against prior art; if it were, it would avail the Appellant nothing: it would be absurd to litigate infringement over a defendant's use of prior art. The key is not that "substantially" excludes prior art. It would be not just strange

but miraculous if applicants could sidestep art just by saying "substantially". The term goes to trivial, functionally irrelevant changes that preserve an invention's benefits.

(d) THE TRICKY INFRINGER HAS NO TIME MACHINE — In related passages, the Examiner's Answer suggests that the Examiner cannot tell when some prior art has "substantially no software" or "substantially no firmware except programs held in an unalterable read-only memory", or is "substantially exclusively COTS"; and therefore that the present claims cannot be examined. That suggestion seems disingenuous.

Clearly it is not prior art which can be expected to have intentionally inserted functionally trivial modifications that retain the benefits of Appellant's invention. It would be fantastic, or at least senseless, to search prior art now for modifications incorporated only to escape the present Appellant's claim language, not yet allowed.

Such intentional, functionally trivial changes could appear in the marketplace, and possibly the patent literature as well — after issue or at least publication of Appellant's claims. Thus in order to fully take into account this preannounced sole purpose of the term "substantially", the Examiner simply would be free to disregard that term.

Like many claim-language recitations, this term is readily amenable to evaluation after the fact, when the character of a particular modification is available for inspection. There is nothing strange or novel about such evaluation.

In fact, exactly the same procedure for evaluating claim language has been followed under the Doctrine of Equivalents for, probably, over a hundred years. For many, many claims (unamended, or amended only as to immaterial elements), it is still so followed.

Judges and juries routinely evaluate such questions as whether a defendant's modification was insubstantial — and only made to escape a patent while preserving an invention's

benefits. The arguments made in the Examiner's Answer would be equally applicable to effective claim-language broadenings and narrowings arising from everyday interpretation under the Doctrine of Equivalents — even though the Examiner cannot even see those wording changes.

In the present case he balks because he can see the word "substantially" — and purports not to understand. As previously declared, it is there only to cover dirty tricks.

II. Generic Computer

Here the Examiner's Answer says (page 61, with emphasis added):

"Best at column 6, lines 28-61 describes the computer as not being limited to any specific structure."

This comment appears to be in reply to the Appellant's discussion (pages 20 and 21 of the Brief on Appeal) of his "generic infrastructure".

The Examiner's Answer here, however, is irrelevant to the Appellant's use of the term "generic". Appellant has pointed out that his own phrase "generic infrastructure" is defined: it is an infrastructure which is (emphasis added):

"capable of protecting virtually any computing system that can issue an error message and handle a recovery command."

The question of whether Best answers to this description has been debated at length, most recently in the Brief on Appeal as mentioned just above. Best cannot, for two reasons:

(a) The Brief shows that Best's software is not generic as defined but rather is all custom — it is specifically written to run his hardware. (b) Furthermore Best's hardware does not protect the computer in the sense described, as it neither receives an error message from its associated computing system nor issues a recovery command.

Best's hardware does post "status" data — including out-bound "error reporting" (Fig. 5, bottom right) — about messages. Presumably such information can be picked up by his associated computer hosts, if they are programmed to do so.

Such information is not going from the computer system to the hardware. It is illustrated as going in the opposite direction. The Best patent does not provide details of such information, which could represent "error messages".

Since it is going the wrong way, it cannot satisfy the Appellant's definition of "generic infrastructure". Likewise it cannot represent what is understood in the computer-reliability field as required for guarding or protecting of one module by another. The Examiner's Answer here, as in his previous papers in this case, is just making a stab in the dark — and misses wildly.

To tie Best to the present invention the Examiner's Answer also asserts here and in section III that Appellant's invention "was actually developed for redundant flight control systems" — and "grew out of space flight control technology." These ideas are news to the inventor and will be taken up at page 28.

III. Entire Computer

Yet again in the Examiner's Answer it is argued that (emphasis added) "Best clearly protects the entire computer system from failure" — in the sense that (1) Best's computer can be an onboard flight-control system in an airplane, and (2) if the flight-control system fails, then (3) so will the airplane, (4) carrying the computer down with it. This is an ingenious argument. Nevertheless it has at least these six flaws:

First, while the Examiner's Answer spins its nice argument about onboard flight-control systems, the Answer does not at all say in what way Best "protects" the entire system — or, indeed, "protects" anything whatsoever. Thus the Examiner

fails to substantiate his assertion; in fact, Best does not protect the system.

As pointed out in the Appellant's earlier papers and reiterated in section II just above, Best's hardware can neither receive an error message from any associated computer nor return a recovery command to such a computer. These functions are not only needed as a matter of logic, for one system or module to "protect" or "guard" another, but also are well known and recognized requirements in the computer-reliability field.

Although Best's hardware (as illustrated) does post outgoing "error" information, that is the wrong direction for error messages from the associated computer — and Best never suggests that his computer "hosts" send an error message to his hardware. A fortiori, the hardware never sends any recovery command to those computer hosts.

Therefore in the context of the Appellant's invention Best's invention is not capable of protecting anything — certainly not its host computer. As often happens, the word "clearly" (used in the Examiner's "Best clearly protects" statement quoted above) masks a true state of affairs that is diametrically opposite to the assertion.

This idea, in the Examiner's Answer, that Best's hardware is protecting his computer system is the same fallacy with which the Answer attempted to support his "generic computer" arguments in the immediately preceding section. The Examiner's misunderstanding about Best's hardware thus produces pervasive errors in dealing with Appellant's claims.

Best's hardware even lacks internal error detection/signaling and recovery commands to protect itself. Failure of any part of his hardware would cause his entire system to fail.

Second, even if Best's system could actually "protect" anything, the argument in the Examiner's Answer depends on the odd circumstance — in an airborne system — that small, partial failures in small components can indirectly cause catastrophic destruction of the whole big system. This is a

property of the system to be protected — not a property of the small component or its small failure.

That is, the Examiner attributes ongoing operation of the computer to Best's hardware, rather than to the million other factors that keep the plane in the air. The Examiner claims credit for Best's little box of hardware, for preventing extraordinary results set in motion by higher agencies. Thus the law meets Rube Goldberg:

- In legal terms, the chain of events that the Examiner envisions here does not satisfy ordinary tests of proximate cause. Rather such an extended chain of causality is usually called "consequential damages".
- In more-popular terms, it is a "Rube Goldberg" sort of thesis. Best's hardware protects a live little mouse by blocking a billiard ball from falling onto a lever; and a few absurd stages later a cannon will not shoot the mouse.

In short, it's illogical to pass off (a) a property of a system that a circuit maybe guards as (b) a property of the circuit.

Third, although Best's hardware box can be used in onboard flight control, it has myriad other computer-related uses including checking messages in a network of ordinary desk computers. When the hardware is used in such other kinds of computer systems, if that hardware fails then what fails with it is not the computer but only the ingenious argument.

Fourth, even when operated by a computer in the flight-control business it need not be carried through the air in an airplane. Merely by way of example, it can be in a control tower — in which case if the circuit fails the tower will not crash, and (more relevantly) the "entire computer" will continue to operate.

Fifth, even if the circuit and computer are in an airplane, for many reasons the dire scenario outlined in the Examiner's Answer is extremely unlikely to materialize:

- The circuit may well be carrying nonessential communications, for instance voice conversations, e. g. of guest passengers. Given the myriad possibilities for constructive use of Best's circuit, it does not follow that an airplane which does have such a computer with Best's circuit will be bodily destroyed if the small circuit fails.
- The word "avionics" encompasses many kinds of systems that controllers or pilots just look at, or read, and that only contribute to the information available to pilots, and that are backed up by other systems which simply warn of hazards. In short, not every piece of "avionics" gear is hooked up to run an airplane directly, or in any other way to be responsible for continued physical integrity of a flight.
- Most specifically, in highest and best avionics use of Best's box (whether running an airplane directly or not), ordinarily there are three instances of his circuit in a computer, and they only compare triplicate messages to determine whether a valid message can be extracted — and, if so, what the valid message is. They are not capable of higher-level function; they're only comparators, not wired or enabled to shut themselves down (though their hosts can shut down and replace failed communication channels), and certainly not to replace themselves in event of failure.
- Most commonly the computers too — to which the valid messages are reported — in turn are triplicated, and they compare calculations among themselves to determine which of their own resulting data are valid. If one of Best's circuits goes out, and therefore fails to report good messages, it is not Best's invention but rather the conventional triplicate computer system that is left to deal with the absence of a good message — and possibly (but not at all necessarily) to protect themselves against failure.

Sixth, and now turning to the Examiner's accusation of relationship between the present invention and the spaceflight field: definitely the invention can be applied in a spaceflight mission, as Appellant's Fig. 10 and related discussion make clear. The Fig. 10 system is "practical", and intriguing too, even though (as the discussion suggests) our current twin-spacecraft efforts to probe the Centauri system will bear fruit of a sort only in roughly 180 centuries — even disregarding the enormous unlikelihood of actually hearing back from those spacecraft, ever.

Long before any such thing happens, the present invention stands ready to be applied in many thousands of other far-less-dramatic and far-more-prosaic environments, such as preventing the constant crashes of personal computers — used by patent lawyers and possibly by members of the Board, to type their documents. Such motivations appear prominently in the Appellant's specification, e. g. at pages 1, 6, 28 and 29.

This focus, and the claim focus too, on commercial, off-the-shelf computers are no accident. These undramatic, prosaic functions of plain ordinary computers are declared in the Appellant's spec at the beginning, and spaceflight is first directly discussed — briefly — only at page 59.

Therefore the effort, in the Examiner's Answer, to one-dimensionally associate the present invention with flight control is unwarranted. It is also very misleading.

IV. Use of "Substantially Exclusively"

(a) "PREDICT INFRINGEMENT" — In the Examiner's Answer, under this heading, it is first said that the Appellant wishes to "predict infringement" and "claim the origin of claims elements which Applicant [sic, Appellant] readily admits he did not

invent." Neither of these characterizations is fully understood, but each one certainly is blurry and inaccurate.

The Appellant's Brief does make clear that various usages of the invention as claimed — e. g., both with and without considering the protected computer as an element of the invention — should be considered infringing. This does not "predict infringement" but rather only is ordinary claim-drafting strategy to establish a favorable measure of damages when possible, and when not possible to waive that benefit.

(b) "ORIGIN OF CLAIMS ELEMENTS" — As to the Examiner's comment about the "origin of claims elements", perhaps he refers to the disagreement about claim 79 with its negative limitation concerning a circuit breaker. Appellant does not "admit" but rather has pointed out to the Examiner, and agreed, that it was the Examiner who first mentioned the phrase "circuit breaker". This does not "claim the origin" of anything — an incoherent idea, actually.

Rather, Appellant has only asserted that, once the Examiner brought up the subject of a circuit breaker, it was necessarily clear to everyone that what the Appellant had invented was not a circuit breaker. Not even the Examiner has ever suggested that the true character of the Appellant's invention was a circuit breaker. That being so, it is inherently plain that it was "not a circuit breaker" and therefore logically claimable in just those terms.

(c) "BEFUDLED" ABOUT METES AND BOUNDS — Next the Examiner's Answer says he cannot determine "metes and bounds" of the phrase "substantially exclusively" — and asks, "Is an experienced Primary Examiner able to determine whether or not he is befuddled by a claim?" The Examiner is here far too modest.

The questioned language will be interpreted, or translated, very specifically, starting in subparagraph (e).

(d) IN EFFECT, NEW GROUNDS OF REJECTION — Nowhere does the Examiner's Answer acknowledge that it is belatedly and abruptly shifting his § 112, 2d ¶ ground — from:

- indefiniteness of "substantially commercial, off-the-shelf" (for which he had an arguable point), to:
- indefiniteness of "substantially exclusively".

In October 2005 the Appellant deleted the first of these phrases. At that time the Appellant expressly acquiesced in the Examiner's argument that it could be hard to evaluate that phrase — because the basic limitation "commercial, off-the-shelf" is itself not very well defined.

This is not true of the second phrase. The basic limitation "exclusively" or "exclusive" is itself very definite.

The Appellant does not at all object to responding now to the Examiner's new and weaker argument. Rather, Appellant only asks the Board to notice that the Examiner has accepted the Appellant's retreat without comment, and now goes on with the same vigor to pursue the much-sounder wording.

(e) APPELLANT'S DEFINED USAGE OF "SUBSTANTIALLY" AND "SUBSTANTIALLY EXCLUSIVELY" — The Appellant has previously (pages 18 through 23 above) pinpointed the meaning of "substantially" as used in this case — it allows only just the sort of latitude invited in caselaw such as *Festo* and *Autogiro* (see below) to reasonably inhibit designing around the claims, generally in keeping with conventional understandings in the patent community.

More specifically, Appellant defines the word to be limited to product modifications that are not directed at all near a core of the invention and are specifically aimed at avoiding the claim language without sacrificing the benefits of the claimed invention. (It is acknowledged that modern U. S. Patent Law does not encourage identifying a "core" or a "kernel" of an invention. For present purposes, those may be considered simply references to the words that follow, typically, and that

are enlarged by the word "substantially".) The meaning of "substantially exclusively" follows directly.

The decision in the modern and famous *Festo* case very clearly supports this intended purpose. In particular, that decision includes an extremely interesting discussion of the Patent Law requirement that inventions must be claimed in words, and the consequences of that requirement.

Quoting an earlier case (*Autogiro*) the decision in *Festo* says (emphasis added):

"The inventor who chooses to patent an invention and disclose it to the public, rather than exploit it in secret, bears the risk that others will devote their efforts toward exploiting the limits of the patent's language:

"'An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law.'"

These passages hit the nail right on the head.

When a competitor exploits "the limits of the patent's language" — and if that language itself is only an "afterthought written to satisfy the requirements of patent law" — then the competitor is already operating two steps away from reality, and fundamental fairness is out the window.

The result is to wash away the careful efforts of the inventor to find the ideal claim wording to distinguish prior art, and all the careful efforts of examiners too toward the same end. *Festo's* quotation of *Autogiro* goes on (emphasis added):

"'This conversion of machine into words allows for unintended idea gaps which cannot be successfully filled.

"'Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things.' *Autogiro Co. of America v. United States*, . . . 397 1155 USPQ2d 6971 (Ct. Cl. 1967)."

Here the Courts in *Festo* and *Autogiro* were recognizing a very difficult and subtle problem that is fundamental to Patent Law: how to balance the reasonable expectations of the inventor (and the Patent Office) with those of competitors.

The Appellant respectfully submits that this problem is best solved by looking at what is "substantial". That is, the key is to make the claim language depend explicitly on the substance of the invention, rather than allowing competitors to escape by playing merely semantic games or tricks.

When a competitor does not really use the substance of an invention, e. g. some true kernel of an invention as claimed, then in general the competitor should not be subject to the patent — and that is fair. It is basically unfair, however, for a competitor to simply walk away "free" just by a slippery maneuver that avoids the substance of the claim language.

Thus the decision in *Festo* goes on to explain the basic importance of what is "substantial" and what is not (emphasis added):

"The language in the patent claims may not capture every nuance of the invention or describe with complete precision the range of its novelty. If patents were always interpreted by their literal terms, their value would be greatly diminished.

"Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying."

Here the Court's use of the word "insubstantial", referring to "substitutes" that are not related to the "substance" of the matter, stands exactly in opposition or in contrast to the words "substantial" and "substantially". That is the reason for the present Appellant's inclusion of these very important words in the claims.

(f) APPELLANT'S NARROW USAGE OF "SUBSTANTIALLY EXCLUSIVELY" — More specifically, Appellant believes that this phrase appears only

as part of the recitation "substantially exclusively COTS". (The acronym "COTS" is here substituted for the longer-form phrase "commercial, off-the-shelf".) Therefore it is not necessary to consider what "substantially exclusively" means in any other context.

So, the phrase "exclusively COTS" means something that is COTS, only — not COTS with anything else injected. Appellant respectfully submits that the Examiner is not befuddled by "exclusively COTS".

Therefore the phrase "substantially exclusively COTS" simply means something that is "exclusively COTS — in substance". Purely in the abstract, even this might conceivably befuddle — but not in this case, because here the term "substantially exclusively COTS" comes up only with reference to the protected computer system.

This discussion is only about the protected computer system, no other system or article, and Appellant is saying that it is all COTS, exclusively COTS, nothing but COTS — substantially. As defined in this case, and noted just above, that last word, "substantially" means specifically that no competitor has inserted some custom (nonCOTS) component, just to break the patent —

- some custom component that really doesn't have any other good reason to be there — i. e., that makes very little functional sense in view of the big extra trouble and cost required to make every unit just a little bit custom,
- some custom component that preserves the benefits of the invention (the competitor wants those benefits), and is deliberately put in just to befuddle a judge or jury, and
- some custom component that has to be at least a bit different from most other custom components put into other units of the otherwise-Avizienis-patented infrastructure systems — having in mind that if many, many units of the same component, in common, are fabricated to put into a

lot of such infrastructure systems, then maybe it has by now itself become a COTS component — oops!

Oops indeed. If that happens, then the competitor has lost.

If really determined to design around the patent, he is going to have to start again and produce some other custom component. This time he has to spend a lot of money on dysfunctional components that also are, perhaps, very laboriously handmade or practically unique.

It may now be more clear how the word "substantially" protects the invention, and the inventor, and the principles of patent law — and doesn't hurt anybody except cheaters. The Examiner's purported inability to understand this is especially implausible if one takes into account that the sole purpose of using that word "substantially" has been promptly and repeatedly explained — starting in response to the Examiner's first Action on the merits. Appellant believes the Examiner has acknowledged (September 2005 Advisory Action) the basic meanings.

(g) APPLYING THE APPELLANT'S DEFINED AND CONSTRAINED USAGE OF "SUBSTANTIALLY" — Returning to the proposition, in the Examiner's Answer, that it is not possible to examine the claims because the word "substantially" obscures the "metes and bounds" — it should be plain now that the only prior art on the table is Best, possibly augmented by the 1985 Avizienis paper. Although put together including considerable equipment that was COTS, the assembled DEDIX described in the '85 paper was itself custom, experimental — not COTS at all. It could not satisfy the condition "exclusively COTS" with or without "substantially".

That experiment did not represent a modification introduced for purposes of designing around the Appellant's claims while preserving the benefits of the Appellant's invention. In fact Appellant's claims were not yet drafted, for perhaps fifteen years after the Avizienis paper was published. Therefore the term "substantially" cannot bring it within the claim language.

We do not know whether the Best device was ever produced commercially, but again it was not conceived with the present claims in mind. The Best patent appeared before Appellant filed his patent application. Therefore, Best could not possibly have aimed to design around the Appellant's claims without losing the advantages of the present invention.

Even if somehow Best had so aimed, his invention would have been insulated from the Appellant's claims simply by virtue of being "prior" — i. e. prior art. As noted above, it is difficult for the undersigned to imagine how any prior art could satisfy these conditions, so it would be meaningless to "examine" for such art.

V. Use of "such" and 35 USC § 112, Fourth Paragraph

The Examiner's Answer here suggests that Appellant was willfully disobedient, because the Examiner had made (emphasis added):

"a standard duplicate claim objection . . . as the subject matter was so close as to be indistinguishable from the parent [and] Applicant, rather than remove the claim, added additional instances . . ."

In the Examiner's Answer it is suggested (page 63) that the Appellant should have drafted the questioned claims in independent form — but the Answer mistakenly suggests reciting "the network or computer as what was invented", whereas in such claims the two together would be the recited invention. The Appellant did offer to do so (Brief on Appeal at 29, paragraph "c") — but the Examiner made no reply, and his Answer fails to explain why that form-over-function rearrangement of words would really have been desirable, since the Appellant's language does not truly pose a failure-to-further-narrow problem.

These provisions of claims 4, 16 etc. are specifically designed to facilitate a fair measure of damages — or of royalties. Considering the discussion on pages 28 and 29 above, at

age 76 the Appellant hopes not to wait 180 centuries for his royalty — and hopes not to be limited to the very minor manufacturing cost of his small hardware box as a measure.

The undersigned apologizes for having failed to understand what the Examiner evidently regards as clear hand-signals requiring filing of a petition. The undersigned is not familiar with the concept of "a standard duplicate claim rejection".

The undersigned was instead operating on the basis of his own several experiences with Examiners and in one case the Board of Appeal — after receiving explanation from the undersigned of the exact nature and purpose of the same claim structure. Those examiners, and the Board, found expressly that the wording and structure were acceptable.

It was for this reason that the undersigned included, in the Appellant's Brief on Appeal (pages 9, at bottom; and 23 in paragraph 5), a reference to the earlier '616 patent taken to Appeal by the undersigned. In that case, the Board permitted like language.

If the present Board would prefer, the undersigned would be willing to file a petition now, or recast the subject claims in independent form if that would be allowable. Of course the undersigned and the Appellant would prefer that the Board give full consideration to this question and find in the Appellant's favor.

Those earlier reactions to the explanations by the undersigned appeared to be approving in particular because the use of the term "such" was and is specifically aimed at promoting the public interest. It does so by enhancing the function of the claims — to particularly point out and distinctly claim — even beyond the usual practice.

The Examiner's Answer here attempts to sidestep this public benefit by saying that such earlier uses were (with emphasis added):

"only evidence of 'such' having a valid meaning is
[sic, in] some claims, at another Examiner's dis-

cretion. The Examiner has never argued that 'such' is not a word, simply that a claim only reciting 'such element' does not further limit the base claim. . . . The Examiner simply maintains these claims fail to further limit the claims upon which they are based."

The undersigned can understand why the Examiner would find this claim structure unusual: it is.

The undersigned has explained to the Examiner, however, not only that the subject language promotes the public interest but also:

- that the earlier cases (representative claim excerpts below) involved usage closely related to those here, and
- precisely why the language does clearly "further limit" (see e. g. April '05 Amendment bridging pages 22 and 23, and pages 26 through 28; and in the October '05 Amendment, referring to a telephone interview, bridging pages 26 and 27).

The '616 patent mentioned by Appellant includes e. g. the two claims below.

In claim 1, two features — both a "driving mover" and a "driven object" (in lines *b* and *c*) — are recited in preamble and reserved out of the elements of the claimed invention as recited in the claim body. Thus they are treated as only contextual, i. e. elements of only the environment of the invention. This is emphasized by use of "such" (instead of "the") at lines *u* and *x* (emphasis added):

a 1. A wobble-absorbing magnetic bearing for a drive
b system that applies force from a driving mover to
c move a driven object; said bearing comprising:
d a driving bearing element having a first sur-
e face;
f a driven bearing element having a second surface
g that faces the first surface along a drive direction;
h rolling elements disposed between the first and
i second surfaces to:
j

k enable the driving and driven bearing ele-
l ments to move substantially freely,
n relative to each other, along at least
o one direction transverse to the drive
p direction, and

q transmit drive forces along the drive di-
r ection from the driving bearing ele-
s ment to the driven bearing element;

t means for receiving driving contact from such
u driving mover at the driving bearing element;

v means for applying driving contact from the
w driven bearing element to such driven object; and

x means for applying magnetic force to hold the
y bearing elements together against the rolling
z elements.

aa In claim 6 below, the reserved-out "driving mover" element
is expressly added (line e) into the claimed combination — but
the "driven object" remains only part of the context as indica-
ted by "such object" (line k).

a 6. The bearing of claim 1, in further combination
b with a drive system for applying force from a driving
c mover to move a driven object; said combination
d comprising:

e a driving mover;

f power input means for engaging and providing
g driving contact from the driving mover to the driv-
h ing-contact receiving means;

i power output means for engaging and receiving
j driving contact from the driven-contact applying
k means to such object."

The present claims depart slightly from the convention as
used in the example above. At line e above, in adding-in the
driving mover the recitation is "a driving mover" rather than
"such driving mover" as in the present case (e. g. claim 4, at
line 2, "such computing system").

Further, the Examiner's Answer says at page 7 (emphasis
added):

"descriptors from the preamble breath[e] life into the
bodily recited limitation and warrant patentable
weight. As the Examiner is then required to find the

computer system, reciting 'such computer system' in its own claim becomes a redundant limitation".

This passage seems to distort a usually-useful holding of *Kropa v. Robie and Maltman* — as pointed out in the prosecution, when the Examiner first proposed this misinterpretation.

The idea of *Kropa* — that "descriptors from the preamble breathe life . . . and warrant patentable weight" — is specifically for use when necessary limitations are omitted from (or weakly stated in) recited elements of an invention, i. e. in the body of a claim. *Kropa* then sometimes rescues the claimed invention from errors of the claim drafter, making the claim patentable.

Here, however, the Examiner's Answer tries to redirect *Kropa* into a situation outside the holding of that case. No necessary limitation was omitted from the present claims; rather, the parent claims are directed to Appellant's infrastructure device alone (without the protected computer); while the dependent claims are directed to the same device in combination with the protected computer.

The parent claims thus cover e. g. manufacture of only the infrastructure device; while the dependent claims cover e. g. manufacture or sale of that device bundled with — or physically integrated into — the protected computer. This concept is commonplace.

VI. Presence of hosts in Best

This portion of the Examiner's Answer discusses a group of claims (at least claims 38, 40 and 70) that all include this limitation (emphasis added):

"said circuits [of Appellant's invention] are not controlled by any associated host computer that is capable of running any application program."

In the Examiner's Answer it is here said (with emphasis added):

"Applicant [sic, Appellant] argues at page 25 that Best uses hosts which violate the claim language. . . . Applicant cites the portion of Best . . . : '[T]he global buses are . . . grouped . . . to form redundant communication channels. . . .' Applicant overlooks that the redundant computers form the hosts of Applicant's claims. . . . While software may be in control of something in Best, Applicant has not proven it is the prohibited host of the claim limitations."

Here the Examiner's Answer:

- admits that there are software hosts, and
- concedes that they (the software) "may" be in control of "something", but
- questions whether "it is the prohibited host of the claim limitations."

As set forth just above, however, the "claim limitations" simply recite (for instance in claim 38) that the claimed circuits (emphasis added):

"are not controlled by any associated host computer that is capable of running any application program."

It seems that the only thing left to prove is that Best's host or hosts can run some application program. Best says in his Abstract (emphasis added):

"Under software control, [Best's hardware circuits] perform the functions of management of asynchronous redundant digital messages, sorting of redundant messages received in arbitrary order, synchronization of distributed computing elements, comparison of data words of arbitrary bit length, and configuration control of active channels and communication path redundancy."

Best later (columns 5 and 6, as excerpted below) explains in detail how his associated computer hosts implement this "software control". Meanwhile, this cluster of functions in itself

appears to be a communications "application program" that Best's software control system performs by operating the hardware circuits of his invention.

Moreover, in computer science, "application program" is a relatively loose construct, usually at least above the operating-system level. Although Best never says so, as a matter of routine and custom in the field of avionics his host computer system does necessarily have an operating system.

Likewise Best does have plural "applications programs" running in that operating system. Again, it is one of those applications programs, running under supervision by that operating system, that manages and operates his hardware.

Thus definitely Best's host can support, and is capable of running, an "applications program". Also, to go beyond routine and custom in this field, the body of Best's specification describes and explains a number of complex computational functions (see examples below) that his computer hosts perform. Appellant submits that these hosts, doing such complicated functions, are in fact processors "capable of running [an] applications program".

Not all "applications programs" are equally demanding or elaborate. An applications program need not be as complex as Adobe Acrobat® or Photoshop® for Windows®; it may be as simple as Notepad — or another even-more-elementary word processor written to operate in DOS.

For instance Best says in column 4:

"This information is then accessed by a controlling (or host) computer and used to identify the messages being held within each DPB [dual-port message buffer]. Messages accumulate in the DPBs until the controlling processor determines that all copies of a redundant message have been received, or until a timeout occurs indicating that a fault has inhibited one or more messages from arriving. The controlling processor then uses RMU 40 illustrated in FIG. 4 to compare all copies of a redundant message and to identify and correct discrepancies among the message copies."

Further, in column 5 Best adds:

"Processing of a redundant message is initiated the host processor. The message channel and page number corresponding to each message copy to be compared are issued to a Message Comparison Control circuit 41

"When message processing is complete, . . . data can then be accessed by the controlling computer As an option for self-test, the controlling computer can also address the output of the [hardware circuits] directly, thus bypassing [a particular circuit]."

As to the Examiner's "question" whether a given host "is the prohibited host of the claim limitations": Best seems to teach only one. His spec reveals no input or output to another host. If there's only one, it must be the "prohibited" one.

VII. Failure to Provide Proper Motivation

It would be surprising to see any Examiner's statement about Section 103, or about motivation, that failed to make reference (gleeful reference) to *KSR v. Teleflex*. Yet *KSR* did not write Section 103 — or motivation, either — out of the Patent Statute; and the Examiner is wrong to assume that *KSR* constitutes support for the Examiner's overall position.

KSR does seem to support the Examiner on the very narrow subject of "motivation", *per se*, as well as "teaching" and "suggestion". In fact the case in large part dismisses the need for such factors. This is not true, however, as to the Examiner's overall position.

Simply put, *KSR* had nothing good to say about obviousness analysis that excludes "common sense" — particularly "[r]igid preventative rules that deny factfinders recourse to common sense". The undersigned believes the PTO has instructed its examining corps that in an obviousness rejection "it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed."

The undersigned is more than happy to substitute any kind of "common sense" test, in place of a "motivation" test. It has not yet been widely noticed by Examiners, evidently, that such a "common sense" substitution cuts both ways.

In fact the kind of "motivation" that has previously been found by Examiners very much defied common sense. Rejections coming across this desk have commonly argued utterly preposterous "motivations". Most have been rationalized under the explicit rubric that permissible motivations did not have to have much to do with an applicant's invention, or with relevant aspects of the prior art either.

True, *KSR* did decree that obviousness analysis should not look only to the problem the patentee was trying to solve, or only to prior-art elements aimed at solving the same problem. Yet "common sense" tells us that motivation must connect with both the invention and the art in some real-world way. From the perspective of the undersigned, this is an improvement.

Perhaps *KSR*, by reopening the door to some kind of "rule of reason" in the field of patents, will turn out to be more of a favor to applicants than has yet been realized by the average still-shellshocked practitioner. Justice Kennedy, while focusing his opinion on correcting the "errors of law made by the Court of Appeals in this case" — explicitly noted that it does not necessarily overturn all precedent from the CAFC.

Although *KSR* surely seems to attenuate the need for Examiners to expressly find motivation, the case has yet to enjoy full interpretation by the Federal Circuit — and the function of a pendulum after all is to swing. In this regard, although the PTO appears eager to incorporate *KSR* into the Section 103 analysis, the pendulum has hardly stopped moving.

Now as the embryonic beginnings of a more heavily common-sense approach to the analysis of obviousness, the Appellant respectfully has asked that the Board in fact fully weigh the Laprie declaration for what it does say. As to expert affidavits, we note that *KSR* expressly disfavors only such papers

that are "conclusory". The discussion of Laprie above, at pages 7 through 14, shows that his declaration instead presents elements of his principled reasoning, and therefore that his paper is not "conclusory".

KSR also addresses the meaning of "person of ordinary skill in the art" — but adding little that seems new. For a person of relatively low skill, providing that a patent specification enables such a person to practice the invention, the bar that must be surmounted is relatively low.

Appellant respectfully submits that his specification is clear to even people of rather modest skill. A journeyman hardware programmer, needing no full (e. g. four-year) engineering degree, can understand and implement the invention in hardware straightforwardly. To such a person, relatively little is obvious; and conversely.

Since Laprie is a person of very high skill in the art, for him the height of the bar is much greater. He asserts, however, that he does not consider the present invention obvious to himself (e. g. excerpt bridging pages 13 and 14 above) — at least not as a combination of Best and Avizienis '85.

Therefore as to a person of "ordinary" skill, the invention must be still more unobvious. It is only fundamental "common sense" to respect the views of such an eminent man in this field — given his own express statements (e. g., at his paragraph 33) about the nature of his own testimony.

VIII. Negative Limitations

The first paragraph in this section of the Examiner's Answer deals with the negative limitation "not a circuit breaker". Appellant believes that the substance of that paragraph has been refuted at pages 15 and 16 above.

In the second paragraph, it is said that the Appellant "has repeatedly indicated litigation as . . . a very real possibility if not purpose of this application" and that Applicant

is pursuing "aggressive protection". The Appellant submits that these characterizations are incorrect.

First, the Appellant has never stated that he intends to litigate, or wants to litigate, but rather only has suggested that he wants claims that can survive vigorous and cynical efforts to design-around the claims. That is, the Appellant wants "real" claims — i. e. claims that have been conceived and negotiated to survive litigation.

Appellant believes the Examiner understands that the goal of claims in every patent is the potential ability to survive litigation. Claims that cannot are not truly claims of a "patent" but rather just a pointless exercise.

Furthermore, claims that are drafted and prosecuted with an eye to survival are probably least likely to actually be litigated, since they are strong enough to discourage or deter infringement and encourage licensing. Litigation is wasteful, whereas licensing represents constructive collaboration between parties — advancing the Constitutional mandate to promote the progress of the useful arts.

Therefore, drafting and prosecution of such claims are in the public interest. Appellant respectfully submits that the Appellant's claims, if carefully crafted to discourage litigation, are not improper, and not overaggressive — but rather are a primary goal of patent examination and in fact of the patent system. It is improper for an Examiner to, in effect, challenge these basic mandated objectives of the Patent Law.

The Examiner concludes this section by proclaiming that he (emphasis added):

"can only view anything and everything as potentially within the scope of the claims unless a specific reason can be found in the specification."

Appellant respectfully submits that this articulation of the issues in this case is extreme — not within the mainstream of patent-prosecution thinking — and is excessively hostile to the Appellant. Given this overview by the Examiner, of the Ap-

pellant's patent application, it would not be surprising to learn that the Examiner harbors an overly constricted view of the present claims.

VIII-bis. [sic, IX.] Rejections in Detail per Claim

In this paragraph the Examiner's Answer reverts to the rejections as reasserted in its previous section "Rejections of the Claims". The Appellant believes that those rejections are fully overcome by the corresponding claim-by-claim answers in the Appellant's Brief on Appeal — augmented by the discussions in this section "(10) Response to Argument".

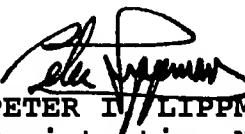
Should the Board find anything to the contrary, Appellant would be glad to provide supplemental information for clarification of any issue herein.

CONCLUSION:

In view of the foregoing facts and reasoning, the Appellant respectfully asks the Board of Appeals to grant the relief specified in Appellant's Brief.

In a separate notice that is attached, the Appellant requests oral argument.

Respectfully submitted,



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<u>claim(s)</u> <u>number</u>	<u>argued</u>	<u>SUB-</u> <u>SECTION</u>	<u>page</u>
55 and 57	as a <u>group</u>	2	20
56	separately	9hh	43
57 (with 55)	as a <u>group</u>	2	21
58	separately	9jj	44
59	separately	9kk	44
60 [CANCELED]	~	~	~
61	separately	9LL*	45
62 through 64, & 76 through 78	[NOT PRESENTED ON APPEAL; explanation at page 13.]		
65 and 67	as a <u>group</u>	4	22
66	separately	9mm	45
67 (with 65)	as a <u>group</u>	4	22
68	separately	9nn	46
69	separately	9oo	46
70	separately	9pp	47
71 (with 50)	as a <u>group</u>	9dd	41
72 [CANCELED]	~	~	~
73	separately	9qq	47
74	separately	9rr	48
75	separately	9ii	43
76 through 78 (with 62 through 64)	[NOT PRESENTED ON APPEAL; explanation at pages 13 and 111.]		
79	separately	8	27
80	separately	9ss	48
81	separately	9tt	49
82	separately	9uu	50
83	separately	9vv	50

*For clarity, lower-case "l" is presented as a capital, "L".